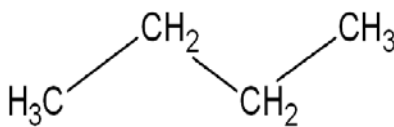
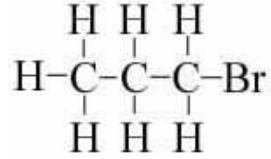
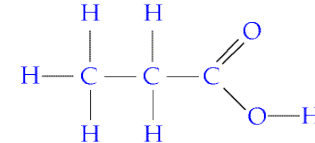
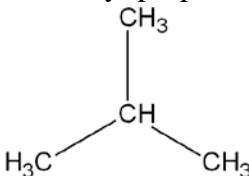
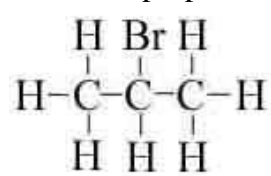
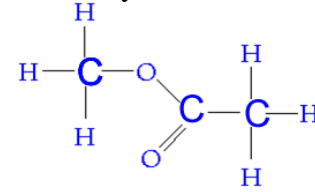
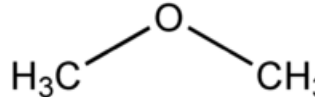


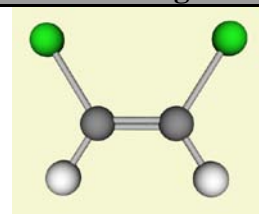
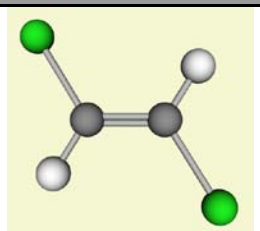
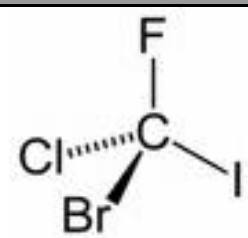
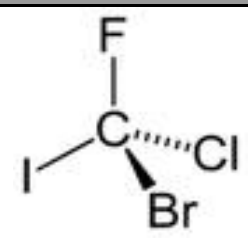
Isomers

Isomers are molecules that have the same molecular formula but different structural formula

1) Structural

chain isomerism	positional isomerism	functional group isomerism
<p style="text-align: center;">butane</p> 	<p style="text-align: center;">1-bromopropane</p> 	<p style="text-align: center;">propanoic acid</p> 
<p style="text-align: center;">2 methyl propane</p> 	<p style="text-align: center;">2-bromopropane</p> 	<p style="text-align: center;">methyl ethanoate</p> 
<p style="text-align: center;"><i>pentane C₅H₁₂ has 3 isomers make, draw & name them</i></p>	<p style="text-align: center;"><i>make & draw butan-1-ol and butan-2-ol</i></p>	<p style="text-align: center;"><i>C₂H₆O has 2 isomers methoxy methane (an ether)</i></p>  <p style="text-align: center;"><i>and</i></p>

2) Stereoisomers

geometric cis or trans isomers		Enantiomers	
			
cis-1,2-dichloroethene	trans-1,2-dichloroethene	CBrClFI	

- restricted rotation about a C=C
- 2 different groups on the left hand side and 2 different groups on the right hand side

*make & draw cis-but-2-ene
and
trans-but-2-ene*

- are mirror images of each other
- have the same structural formula
- known as optical isomers because of their effect on plane polarised light
- have 4 different groups positioned around a chiral carbon atom

*make & draw 2 3d sketches of butan-2-ol
so that they are mirror images of each other*

additional information

	mp (°C)	bp (°C)
cis	-80	60
trans	-50	48

why is the bp of cis higher?

cis is polar trans is non-polar with
permanent dipole forces as well as temporary dipole forces
so
more energy is required to boil the cis isomer so bp is higher

why is the melting point of cis lower?

in a solid state the molecules must pack together efficiently, however the U
shape of the cis isomer will not pack as well as the straight shape of the
trans isomer
so
less energy is needed to melt the cis isomer so the mp is lower

additional information

A solution of one enantiomer rotates the plane of polarisation in a
clockwise direction. This enantiomer is known as the (+) form or given the
letter L for **levorotatory**

A solution of the other enantiomer rotates the plane of polarisation in an
anti-clockwise direction. This enantiomer is known as the (-) form or
given the letter D for **dextrorotatory**

When optically active substances are made in the lab, they often occur as a
50/50 mixture of the two enantiomers. This is known as a **racemic**
mixture or racemic. It has no effect on plane polarised light.